

FORSCHUNGSERGEBNISSE RESEARCH REPORTS

An Unusual Insulator-Metal Transition in the Intermetallic Compound TiPtGe	39	Hard X-ray Photoelectron Spectroscopy: New Opportunities for Chemical and Physical Analysis	99
New Developments in Clathrate Research	44	Non-Magnetic Quantum Impurities and Resultant Two-Channel Kondo Effect in $\text{ZrAs}_{1.58}\text{Se}_{0.39}$	103
Intermetallic Phases as Thermoelectrics	49	Spin Resonance of Heavy Electrons: Investigation of Collective Spin Modes at High Pressures and Low Temperatures	108
Confined Metals and Low-Temperature Syntheses	53	Synthesis, Characterization, and Physical Properties of Iron Chalcogenides Fe_xSe , Fe_xTe and $\text{Fe}_x(\text{Se},\text{Te})$	111
Magnetism and Spin States of FeSb_2	56	Phase Stability and Magnetism of Ternary Laves Phases	116
Structural, Electronic and Superconducting Properties of Filled Skutterudites $M\text{Pt}_4\text{Ge}_{12}$ ($M = \text{Sr}, \text{Ba}, \text{La}, \text{Ce}, \text{Pr}, \text{Nd}, \text{Sm}, \text{Eu}$)	59	Aspects of Superconductivity in the Non-Centrosymmetric Superconductor CePt_3Si	121
Low-Temperature Properties of CeRu_4Sn_6 from NMR and Specific Heat: Heavy Fermions Emerging from a Kondo-Insulating State	63	Towards Understanding the Non-Centrosymmetric Superconductors – New MPI partner group established in Zhejiang University	124
$\text{Sr}_3[\text{Co}(\text{CN})_3]$ and $\text{Ba}_3[\text{Co}(\text{CN})_3]$: Highly Reduced Cobaltates	66	Quantum Chemical Tools for Bonding Analysis	127
The First Binary Compound of Cobalt with Bismuth	72	Revealing Unusual Bonding Situations	130
The Role of Ionic Liquids in the Preparation of Intermetallic Clathrates and Related Element Modifications	75	Metallographic Characterisation of Twinning and Other Microstructure Defects of $\text{Fe}_4\text{Al}_{13}$	134
Surprising Cobaltates: A Spectroscopic Perspective	78	Interplay of Structural, Magnetic and Superconducting Properties in the Compounds CeCoIn_5 and CeIrIn_5	137
In Search for Rare-Earth Borophosphates	84	Enhancing the Catalytic Activity – Taking the Next Step in the Knowledge-Based Development of Hydrogenation Catalysts	143
Attempt to Probe the Ground State by New Spectroscopic Techniques	88		
Rare-Earth Metal Chains in the Crystal Structures of Dicarboferrates	92		
Ferromagnetic Quantum Criticality in the New Quasi-One-Dimensional Heavy-Fermion Metal YbNi_4P_2	95		

Structural and Magnetotransport Properties of YbRh ₂ Si ₂ and its Co- and Ir-Substituted Derivatives Yb(Rh _{1-y} Ir _y) ₂ Si ₂ and Yb(Rh _{1-x} Co _x) ₂ Si ₂	146	Crystal Branching and Spherulite Formation: Similar Shapes ↔ Different Mechanisms	181
Low-Temperature Chemistry in the Binary Systems of Pt and Mn with Gallium	152	PbS (OA/TOP)-Mesocrystals: Relationship between Nanocrystal Orientation and Superlattice-Array	186
Angular Dependent Magnetostriction Measurements of Bismuth Close to the Quantum Limit	155	Experimental Strategies for better Diffraction Data	190
Thermodynamic Measurements in Pulsed Magnetic Fields	160	(B ₄ Se ₇)I ₄ : A Molecule with Ufosane-Type Hetero-Cage	193
Complex Metallic Alloy Phases in the Al-Mg-Zn System	164	Magnetic Field Effects in Frustrated Low-Dimensional Magnets	196
Spin Fluctuations in the Normal and Superconducting States of the Prototypical Heavy-Fermion Compound CeCu ₂ Si ₂	167	Frustrated 3d Heavy Fermion Compound Spinel LiV ₂ O ₄	200
Evolution and Complexity of Dental (Apatite-Based) Biominerals: Mimicking the Very Beginning in the Laboratory	171	Local Correlations, Non-Local Screening, Multiplet Effects and Band Formation in NiO	204
Bottom-to-Top: Understanding Ion Association, Crystal Nucleation and Growth, the Formation of Hierarchical Composites and Materials Properties from Atomistic Simulations	177		